PRACTICAL : 6

Theory:

1.1 What is Prompt Engineering?

Prompt engineering is the art and science of designing inputs (prompts) to get desired outputs from AI models. It involves using precise, structured, and contextually relevant instructions to achieve accurate, creative, or useful AI responses.

1.2 Why is it Important?

- Enhances productivity using AI tools

- Reduces misunderstanding or hallucination by the model

- Improves quality of image, video, and text generation

- Key skill in modern AI workflows

1.3 Types of Prompts

- Instructional Prompts: 'Summarize this article.'

- Conversational Prompts: 'Can you explain how solar panels work?'

- Visual Prompts (for DALL·E/SORA): 'A medieval castle under the northern lights, cinematic lighting.'

- Few-shot Prompts: Providing examples before asking for results

1.4 Techniques in Prompt Engineering

- Use clear and specific instructions

- Define the tone, format, or audience

- Provide examples or constraints

- Iterate and refine

- Use role-based framing (e.g., 'You are a professor...')

Task 1: Prompt Categorization

1. **"Generate a logo for a tech startup using neon colors."**
    - **Category: Visual / Creative**
    - **Reasoning:**
      This prompt is asking for the creation of a *visual design* (a logo). It's not about conversation or explanation, but rather about *producing a creative, visual output* with specific styling instructions (neon colors).

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2. **"Explain blockchain to a 5-year-old."**
    - **Category: Instructional / Educational**
    - **Reasoning:**
      The prompt requires breaking down a complex topic (*blockchain*) into *simplified, easy-to-understand terms* suitable for a young child. It falls under instructional because the goal is to **teach/explain** clearly.

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3. **"You are a UX designer. Suggest improvements to this app layout."**
    - **Category: Conversational / Problem-Solving**
    - **Reasoning:**
      This is framed like a role-play task ("You are a UX designer") and asks for *suggestions* (improvements). It's interactive and problem-solving in nature, requiring critical thinking rather than producing a visual directly.

Task 2: Refinement Practice

1. **Original:** "Write a story."
   Refined: "Write a 500-word short story about a time-traveling teenager who accidentally changes history during a trip to Ancient Egypt."

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2. **Original:** "Design a website."
   Refined: "Design a modern landing page for a fitness app, using green and white colors, with sections for testimonials, workout plans, and a subscription button."

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3. **Original:** "Draw an animal."
   Refined: "Create an illustration of a panda sitting under a cherry blossom tree, holding a bamboo stick, in a watercolor art style."

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4. **Original:** "Make a video."
   Refined: "Create a 30-second animated video advertisement for a new eco-friendly water bottle, showing how it reduces plastic waste in the ocean."

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5. **Original:** "Write an essay."
   Refined: "Write a 1000-word essay discussing the impact of artificial intelligence on education, focusing on personalized learning, accessibility, and future challenges."

Task 3: Prompt Design Exercise

1. ChatGPT (Text-based)

Prompt:
"Imagine you are a travel blogger. Write a 600-word blog post describing a one-week trip through Japan, including cultural experiences, food highlights, and must-visit cities."

- **Why this works:** Text-based prompt that requires descriptive writing, storytelling, and cultural details.

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2. DALL·E (Image-based)

Prompt:
"Generate a digital painting of a medieval library floating in the clouds, with glowing books that emit light and magical creatures reading them."

- **Why this works:** Image-based, highly visual, and creative. DALL·E specializes in generating artistic and imaginative visuals.

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3. SORA (Video-based)

Prompt:
"Create a 15-second cinematic video showing a seed growing into a giant tree, with time-lapse style transitions from sunrise to sunset, while animals gather under its shade."

- **Why this works:** Video-based, focuses on movement, transformation, and storytelling suitable for short clips.

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4. Coding / Logic

Prompt:
"Write a Python program that generates the Fibonacci sequence up to a user-defined number using recursion, and also displays the time complexity of the algorithm."

- **Why this works:** Logic + coding-based, requiring algorithm design and programming output.

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5. Education / Training

Prompt:
"Design a 5-slide training module for new employees explaining workplace cybersecurity basics, including password safety, phishing emails, and secure browsing habits."

- **Why this works:** Fits education/training, practical and instructional with real-world application.